

WHAT IS CLAIMED IS:

1. An optical interconnection circuit between chips, comprising:
a substrate;
a first micro tile element having a light emitting function provided on the substrate;
a second micro tile element having a light receiving function provided on the substrate;
an optical wave-guide optically connecting the first micro tile element and the second micro tile element with each other, and including an optical wave-guide member formed on the substrate; and
an electrode provided on the substrate and electrically connected to at least one of the first micro tile element and the second micro tile element.
2. The optical interconnection circuit between chips according to claim 1,
the electrode being a bonding pad which is a wiring electrode for an integrated circuit chip mounted onto the substrate.
3. The optical interconnection circuit between chips according to claim 1,
the electrode being a bonding pad in a case of an integrated circuit chip being flip-chip mounted onto the substrate.
4. The optical interconnection circuit between chips according to claim 2,
further including a bump composed of a convex conductive member and formed on the integrated circuit chip, the bump being electrically connected to at least one of an input terminal and an output terminal of the integrated circuit chip, and being bonded to the electrode.
5. The optical interconnection circuit between chips according to claim 2,
the integrated circuit chip including at least a plurality of integrated circuit chips which are mounted onto the substrate; and
a signal being transmitted among the plurality of integrated circuit chips via at least the first micro tile element, the second micro tile element, and the optical wave-guide.
6. The optical interconnection circuit between chips according to claim 1,
the second micro tile element including at least a plurality of second micro tile elements; and
the plurality of second micro tile elements being optically connected to a single of the optical wave-guide.

7. The optical interconnection circuit between chips according to claim 1, the first micro tile element emitting light which is to be a clock signal.
8. The optical interconnection circuit between chips according to claim 2, the substrate being an element of a flat panel display; at least an integrated circuit to time control and an integrated circuit to provide driving being mounted onto the substrate as the integrated circuit chip; and the optical wave-guide including at least one optical wave-guide which is provided between the integrated circuit to time control and the integrated circuit to provide driving.
9. The optical interconnection circuit between chips according to claim 8, the integrated circuit to provide driving including at least a plurality of integrated circuits to provide driving which are mounted onto the substrate; and at least a single of the optical wave-guide being provided for each of the integrated circuits to provide driving.
10. The optical interconnection circuit between chips according to claim 8, the integrated circuit to time control being electrically connected to the first micro tile element which corresponds to the integrated circuit to provide driving mounted onto the substrate.
11. The optical interconnection circuit between chips according to claim 8, the integrated circuit to provide driving being electrically connected to at least one of the second micro tile element.
12. The optical interconnection circuit between chips according to claim 1, the optical wave-guide being treated to prevent extraneous light from entering the optical wave-guide.
13. The optical interconnection circuit between chips according to claim 1, the first micro tile element including at least a plurality of first micro tile elements provided on the substrate; and a plurality of the first micro tile elements emitting light having at least two kinds of wavelengths that are different from each other to the optical wave-guide.
14. The optical interconnection circuit between chips according to claim 1, the optical wave-guide including a light scattering mechanism scattering light, which is installed in the vicinity of at least one of the first micro tile element and the second micro tile element.

15. The optical interconnection circuit between chips according to claim 14, the light scattering mechanism being composed of a resin into which a light scattering particle is mixed.
16. The optical interconnection circuit between chips according to claim 14, the light scattering mechanism being composed of a resin of which a surface is processed to include an irregularity thereon.
17. The optical interconnection circuit between chips according to claim 14, the light scattering mechanism being composed of the optical wave-guide member of which at least one of the line width and the height differ from the other.
18. The optical interconnection circuit between chips according to claim 14, the light scattering mechanism being composed of at least one of a resin and a glass in which a light scattering particle is dispersed, and being dome-shaped.
19. An electrooptical device, comprising:
the optical interconnection circuit between chips according to claim 1.
20. Electronic equipment, comprising:
the optical interconnection circuit between chips according to claim 1.